Rhodora

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THE NEW ENGLAND BOTANICAL CLUB

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THE ANNUAL MEETING OF THE NEW ENGLAND BOTANICAL CLUB.

E. F. WILLIAMS, Recording Secretary.

THE Annual Meeting of the New England Botanical Club was held on Friday, Dec. 6th, 1912, at 8 P. M. in the hall of the Twentieth Century Club, No. 3 Joy St., Boston, where our Club has held its meetings since Nov. 2nd, 1906. Professor Merritt L. Fernald, the President, occupied the Chair and there were 42 members present. This was the 155th meeting of the Club and as some of the proceedings at this meeting may be of interest to our non-resident or absent members an abstract of the minutes of the proceedings is given below.

After the reading of the report of the last meeting and the report of the Treasurer, Prof. Wiegand, the Phaenogamic Curator, made his report. It appears therefrom that the Club Herbarium has prospered greatly during the past year. To quote from the report,

"In July last, the Club Herbarium was moved into the sumptuous quarters in the Gray Herbarium made possible through the generosity of Mr. George Robert White. It now occupies the large eastern room in the second story of the White Laboratory, a structure wholly fire proof. The herbarium is housed in standard steel cases and the tables as well as wall cases are also of metal and hence fire proof.

The accessions during the year have been gratifying beyond expectation. Besides many small sets from about fifty persons several large contributions are worthy of special mention — the Herbaria of Sydney Harris, Charles H. Morss, the late Edward S. Hoar of Concord, the herbarium of Geo. Mackie, collected chiefly at Amherst, Mass., the recent collections of Miss Kate Furbish, the New England portion of the herbarium of Arthur Stanley Pease rich in plants of Coös County N. H., and Andover, Massachusetts. Above all in size and importance, however, stands the gift to the Club of the herbarium of our corresponding secretary, Mr. Edward L. Rand. This collection, which has not yet been received, contains many thousands of specimens and is especially important as having formed the basis of Rand & Redfield's Flora of Mt. Desert Island. The total number of specimens actually received during the year was 11,765. The herbarium actually contains 51,109 sheets of mounted specimens distributed as follows.

From Maine	22,238
" N. H.	5,735
" Vt.	2,396
" Mass.	17,380
" R. I.	882
" Conn.	2,478

The reports of the Committees were then made, and the election of officers for the ensuing year resulted as follows: President, Merritt L. Fernald, Vice President, William P. Rich, Corresponding Secretary, Edward L. Rand, Recording Secretary and Treasurer, Emile F. Williams, Phaenogamic Curator, Karl M. Wiegand, Cryptogamic Curator, Lincoln W. Riddle, Members of the Council, Joseph A. Cushman, Walter Deane, and Benjamin L. Robinson. The following candidates, for membership recommended by the Council, were elected:—Resident members: Sumner C. Brooks, Cambridge, Myron E. Gutterson, Andover, George H. Richards, Boston, George S. Torrey, Boston, Prof. William M. Wheeler, Boston. Non-resident members: The Rev. Charles B. Ames, Belfast, Maine, Prof. Samuel F. Clarke, Williamstown, Massachusetts, Ralph Hoffman, Kansas City, Missouri, Bayard Long, Ashbourne, Pennsylvania, and Jay G. Underwood, Hartland, Vermont.

The talk of the evening, "The Shad Bushes of New England," was given by Prof. Wiegand, and this difficult subject was presented in such a comprehensive and lucid manner that it would appear as if his treatment would solve most of the difficulties which have beset every student of the genus. The difficulties are two-fold — first the very extensive and confused nomenclature, much of it hopeless on account of the insufficiency of the earlier descriptions and the impossibility of tracing the specimens upon which they were based and — second, the great tendency to hybridization of the species in this genus, no less than from a quarter to a third of the sheets in every large collection being hybrids.

The paper on Amelanchier was published by Prof. Wiegand in the July, 1912, RHODORA. Many sheets of beautiful specimens of the genus were exhibited and also some excellent photographs of typical or noteworthy specimens.

NOTES ON CONNECTICUT MOSSES,— IV.

G. E. NICHOLS.

FOR the moss student whose lack of time precludes the pursuit of any extensive research along bryological lines there is open a fascinating field in the intensive study of the mosses within some limited area. During the past few years the writer's major interests have become of such a nature that the study of bryology has necessarily been forced to a subordinate position, and for this reason the little attention that it has been possible to give to this subject has been restricted almost entirely to Connecticut mosses. The advisability of further exploration within this state and of more intensive work was pointed out in the introductory chapter to the Bryophytes of Connecticut, and subsequent work has only served to make still more evident the apparently inexhaustible possibilities, from a bryological standpoint, of the region under consideration. Since 1908 three papers on Connecticut mosses have appeared [1] in each of which ten species new to the state have been recorded, while the present paper includes an even longer list of additions.

SPECIES OF SPHAGNUM NEW TO CONNECTICUT.

During the past year there has appeared Warnstorf's long heralded Sphagnologia Universalis.[2] In this exhaustive work many new species are described while other forms which heretofore have passed as varieties are accorded the dignity of specific rank. On the authority of Warnstorf no less than eleven new species of *Sphagnum* may be added to the thirty[1] already accredited to Connecticut. These various additions are noted in the following paragraphs together, in some instances, with brief comment regarding the specimens on which the Connecticut record is based. In cases where no material can be found in the herbarium of Yale University to represent particular species cited by Warnstorf the record is quoted solely on his authority, as is indicated by the use of quotation marks.

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[1] RHODORA: **12**:146–154. 1910; **13**: 40–46. 1911; **14**: 45–52. 1912.

[2] Engler, Pflanzenreich **51**. 1911.

SPHAGNUM FLAVICOMANS (Card.) Warnst. (*S. subnitens* Russ. & Warnst., var. *flavicomans* (Card.) Warnst.). For definite localities see under *S. subnitens* in Bryophytes of Connecticut.

SPHAGNUM SUBTILE (Russ.) Warnst. (*S. acutifolium* Ehrh., var. *subtile* Russ.). "Connecticut (Evans, Eaton)." In the opinion of Dr. Andrews this is not specifically distinct from *S. rubellum*.

SPHAGNUM AMBLYPHYLLUM Russ. (*S. recurvum* Beauv., var. *amblyphyllum* (Russ.) Warnst.). For definite stations see under *S. recurvum* in Bryophytes of Connecticut.

SPHAGNUM RUPPINENSE Warnst. "Connecticut, Bethany (Evans, No. 226)." This is the only extra-European station cited for the species. The number quoted, however, does not appear on any of the specimens in the Yale herbarium. Evans, No. 224, is labeled *S. cuspidatum*, var. *falcatum* Russ., forma *mollis* Warnst. and it seems barely possible that this is the specimen to which reference is intended. Both *S. ruppinense* and the next species are regarded by Dr. Andrews as varieties of *S. cuspidatum*.

SPHAGNUM VIRGINIANUM Warnst. "Connecticut, Bethany (Evans, No. 226)." It will be observed that the Connecticut citation for this species is identical with that given for *S. ruppinense*.

SPHAGNUM FRANCONIAE Warnst. "Connecticut (Eaton)." Var. *robustum* Warnst. "Connecticut, Branford (Eaton, No. 96)." According to Warnstorf this is a submersed form similar in habit to *S. rufescens* or *S. cuspidatum*, var. *submersum*. The specimen from Bethany, distributed by Eaton & Faxon[2] as No. 96 and bearing the latter name may possibly be the plant now referred as var. *robustum* to *S. Franconiae*.

---

[1] In the opinion of Dr. A. LeR. Andrews and of the writer the Connecticut specimens heretofore referred to *S. Garberi* Lesq. & James belong to *S. compactum* DC.

[2] Sphag. Bor. Amer. Exsic.

Sphagnum pseudosquarrosum Warnst. "Connecticut, Oxford (Eaton)." Var. *heterophyllum* Warnst. Oxford (Eaton, 1893).[1] Var. *bicolor* Warnst. Oxford (Eaton, 1893).[2]

Sphagnum bavaricum Warnst. In pools, altitude 27 m., North Stonington (G. E. N., 1912). A submersed form heretofore included as a variety under *S. subsecundum.*

Sphagnum Nicholsii Warnst. Submerged in shaded pools of a mountain swamp, altitude 570 m., Salisbury (G. E. N., 1912). Although in habit this moss resembles *S. cuspidatum*, it is obviously related to *S. inundatum*, from which it differs primarily in the fact that the hyalodermis of the stem consists of usually two (1–3) layers of cells instead of but one. From *S. contortum* and *S. platyphyllum*, the only other Connecticut species with which confusion is likely, *S. Nicholsii* may be distinguished by the shape of the chlorophyll cells in the branch leaves. In the two first mentioned species these are rectangular or barrel shaped in cross section whereas in the present species they are triangular or trapezoidal.

Sphagnum turgidulum Warnst. East Haven (Eaton, 1893). Distributed by Eaton & Faxon[3] as *S. rufescens*, a species to which it bears a marked resemblance.

Sphagnum subbicolor Hampe. (*S. papillosum* Lindb., var. *intermedium* Warnst.). East Haven (Evans, 1891). The status of *S. subbicolor* has been discussed somewhat at length by Andrews[4] who considers it an artificial species designed to embrace intergrading forms of the two closely related species, *S. magellanicum* Brid. (*S. medium* Limpr.) and *S. palustre* L. (*S. cymbifolium* Ehrh.).

Sphagnum macrophyllum Bernh. Floating in ponds, altitude 120–150 m., Voluntown (G. E. N., 1912). There are a number of reasons why this moss is of unusual interest. In the first place the general appearance of the plant is strikingly different from that of any other Connecticut species — in fact, at first sight, it does not look like a *Sphagnum* at all; for the leaves, instead of being imbricated, spread at a wide angle from the branches, and the majority of the branch leaves are very large, attaining a length of 12 mm. or even more with a width of about 2 mm.; they have a glossy, metallic lustre when dry and in the Connecticut specimens were dark olive-green in color when fresh. The only New England *Sphagnum* with which there is any danger whatever of confusing this beautiful form is *S. Torreyanum.* In the ponds referred to these two species grew side by side but were readily separable, the habit of *S. Torreyanum* being far less robust and the leaves much shorter, usually somewhat imbricated, and pale green in color. *S. Torreyanum* more often than not grew just below the surface with the lower portion of its stem imbedded in the substratum, while *S. macrophyllum* almost invariably floated free on the surface. The geographical distribution of *S. macrophyllum* is also rather interesting. It is endemic to North America and is primarily a southern coastal-plain species, its range coinciding approximately with that of the southern white cedar (*Chamaecyparis thyoides*). For New England, in addition to two stations in eastern Connecticut, it is reported from at least three localities in Rhode Island,[1] and in a recent letter Prof. Collins writes that he has in his herbarium a single specimen from eastern Maine (Marshfield, Washington County)!

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[1] Eaton & Faxon, Sphag. Bor. Amer. Exsic. No. 130 (as *S. subsecundum*, var. *macrophyllum*).

[2] Eaton & Faxon, Sphag. Bor. Amer. Exsic. No. 143 (as *S. rufescens*).

[3] Sphag. Bor. Amer. Exsic. No. 142.

[4] Bryologist **15**: 71, 72. 1912.

SPECIES OF FONTINALIS NEW TO CONNECTICUT.

Five species of *Fontinalis* new to Connecticut have been recorded during the past year, thus bringing the total number now known to occur in the state up to nine. For the determination of the various species the writer is indebted to M. Jules Cardot, of Charleville, France, author of the "Monographie des Fontinalacées"[2] and generally recognized as an authority on the group.

Probably no genus, with the possible exception of *Sphagnum,* is more perplexing to the bryologist than *Fontinalis.* For, as Cardot remarks, the species are all more or less polymorphic and frequently exhibit marked structural variations as a result of differences in external conditions. Thus two plants of the same species growing in flowing and still water respectively may present totally different appearances; in a similar way, as is not infrequently the case with aquatic mosses, there may be marked contrasts between the aspects of the plant at different seasons of the year; and furthermore the same species-complex — using this term to designate a species in its broadest and most comprehensive sense — may vary considerably in different regions, the divergence frequently becoming so pronounced and apparently so constant as to make it convenient from a taxonomic standpoint to recognize more than a single species. From the foregoing remarks it can readily be seen that the difficulty in drawing specific lines in this genus is very great, and it is also obvious that not all of the various described species possess equal specific worth. While there is no question regarding the specific value of many of them, others represent merely variants due to regional or environmental factors.[1] The method of treatment adopted by Cardot takes cognizance of these conditions and his scheme of classification is outlined briefly in the next paragraph.

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[1] Bennett: Plants of Rhode Island 59. 1888; also herb. J. F. Collins.

[2] Mém. d. Soc. nat. d. Sciences nat. et math. d. Cherbourg **28**. 1892.

On a basis of the vegetative characters of the various species Cardot first subdivides the genus into six sections. Each of these sections comprises a natural group of closely related species which may be considered as in all probability having been derived from a recent common ancestor. He further classifies the respective species of each section into four ranks according to their relative importance or distinctness as species. Species of the first rank — there may be more than one such species in a given section — exhibit marked structural differences from one another. Species of the three lower ranks are separated from one another and from those of the first rank by fewer and less definite points of distinction — they are therefore subordinated to species of the first rank. Among themselves first rank species are as nearly as possible of equivalent value as regards the sum total of their distinctive characters, and the same observation might apply equally well to species of the second, third, and fourth ranks respectively. Transitions do not exist between species of the first rank, but species of the lower ranks are not always clearly delimited either among themselves or from the higher members of the same series. *Pari passu* there are sometimes encountered forms which it is impossible to name with any degree of certainty. Species of the third and fourth ranks generally occur as local or regional races, in most cases replacing or excluding in a given region the species from which they have probably been derived. Thus, for example, while the typical European form of *F. antipyretica* is very rare in this country it is paralleled, so to speak, by *F. antipyretica*, var. *gigantea*, *F. neomexicana*, etc.— forms which are not present in Europe.

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[1] Species of the latter sort correspond variously to the elementary species of DeVries, the "kleine Arten" of K. Müller, and the subspecies of many authors.

Because of the inadequacy of readily accessible information as to the distribution of most species of *Fontinalis* it has been thought best in connection with the following remarks concerning the forms here recorded from Connecticut for the first time to include as complete an account of their ranges on this continent as the data at hand will permit.

FONTINALIS SULLIVANTII Lindb., not Lesq. & James. (*F. Lescurii*, var. *gracilescens* Sull.). On stones lining an old well — probably not submerged at any season of the year, altitude about 120 m., Monroe (G. E. N., 1911). Known from Maine,[1] New Hampshire,[2] Massachusetts,[3] and Rhode Island[4]; also from New Jersey,[5] Pennsylvania,[6] Delaware[7], Georgia,[8] and Minnesota[9]; endemic to North America.

Fontinalis Allenii Card. sp. nova. In a rocky brook, Mount Carmel, Hamden (J. A. Allen, 1880). M. Cardot supplies the following description: "This beautiful species belongs to the *F. Novae Angliae* group. In its robust habit and appressed, subimbricate leaves it resembles especially *F. Cardoti* Ren.,[10] but it differs from this in its even greater stoutness, its copper yellow color and glossy lustre, and its larger leaves which are rounded-obtuse at the apex, rarely acute, entire or scarcely sinuate near the tip. Branches slightly curved; plants rigid when dry. Fructification unknown." The specimens from which this species is described, together with those of *F. nitida* and *F. flaccida* mentioned below, were unearthed by the writer among a lot of undetermined *Fontinalis* material that was turned over to him by Messrs. O. D. and J. A. Allen, two collectors whose former activities have contributed much toward the present knowledge of the bryophytes in this state. The type specimen is preserved in the herbarium of Cardot; co-type specimens were recently distributed by Grout.[11]

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[1] Rand & Redfield, Flora of Mount Desert 211. 1894.

[2] Lesquereux & James, Manual 271. 1884.

[3] Grout, N. Am. Musci Pleuro. Exsic. No. 73.

[4] Bennett, l. c. 63; also herb. Collins.

[5] Cardot, l. c. 78.

[6] Herb. Cardot.

[7] Lesquereux & James, l. c.

[8] Herb. E. B. Chamberlain.

[9] Holzinger: Minn. Bot. Stud. **1**: 290. 1897.

[10] *F. Cardoti* has been recorded from Vermont (RHODORA **4**: 180. 1902) and is probably widely distributed. A form closely approaching this species has been collected by the writer at North Branford.

[11] N. Amer. Musci Pleuro. Exsic. No. 395.

Fontinalis Novae Angliae Sull., var. **heterophylla** Card. var. nova. In a rocky brook, altitude 45 m., North Branford (G. E. N., 1911). "A form remarkable on account of the more or less pronounced dimorphism of its leaves. Stem leaves very large and flaccid, attaining a length of 6 mm. with a width of 2 mm.; for the most part narrowed into an elongated acumen, slightly truncate, denticulate at the apex. Branch leaves considerably smaller, ovate lanceolate, very broadly and shortly acuminate, obtuse." Type in herbarium of Cardot; co-type in herbarium of Yale University.

Fontinalis Novae Angliae Sull., var. **Lorenziae** Card. var. nova. Andover (C. A. Weatherby, 1907; communicated by Miss Annie Lorenz). "A form characterized by its slender branches, which are elongated, slightly spreading, and covered with small, imbricated leaves. Habit resembling that of *F. dalecarlica* Br. & Sch." Type in herbarium of Cardot; co-type in herbarium of Yale University.

Fontinalis Novae Angliae Sull., var. **latifolia** Card. var. nova. In a brook, Burlington (G. E. N., 1908). "Differs from the typical form in the structure of the leaves, which are more flaccid, wider, broadly ovate, and very concave." Type in herbarium of Cardot; co-type in herbarium of Yale University.

Fontinalis nitida Lindb. & Arn. Attached to stones on muddy shores, upper reaches of tidal stream, New Haven (J. A. Allen, 1880). Apparently not heretofore recorded from the eastern United States, but known from Quebec[1]; Ontario[2]; British Columbia[3]; Alberta, Idaho, Wyoming, and Arizona[4]; Washington[5]; Asia.

Fontinalis Duriaei Schimp. Growing on rocks in brooks, Lakeville, altitude 225 m., and North Branford, altitude 45 m. (G. E. N., 1911). New to the eastern United States. Known from Saskatchewan, Wisconsin, Dakota, Colorado, Wyoming, and Arizona[6]; Minnesota[7]; Missouri and Arkansas[8]; California[9]; Europe, Africa.

Fontinalis flaccida Ren. & Card. On sticks and branches in still water, slightly above sea level, East Haven (J. A. Allen, 1880) and North Stonington (G. E. N.). Reported from New Hampshire[1] and Massachusetts[2]; also from Maryland and Georgia[3]; Alabama and Louisiana[4]; Missouri[5]; Ohio[6]; British Columbia[7]; endemic to North America.

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[1] Grout, N. Amer. Musci Pleuro. Exsic. No. 297.
[2] Macoun, Cat. Can. Plants **7**: 269. 1902.
[3] Cardot, l. c. 104.
[4] Herb. Cardot.
[5] Herb. New York Botanical Garden.
Herb. Cardot.
[7] Herb. Chamberlain.
[8] Herb. New York Botanical Garden.
[9] Cardot, l. c. 113.

According to Cardot's classification, of the various species thus far recorded from Connecticut *F. antipyretica* and *F. Novae Angliae* are referred to the first rank; *F. Sullivantii* is a second rank species subordinate to the southern *F. disticha* Hook. & Wils.; *F. dalecarlica* is a third rank species related to the European *F. squamosa* L.; *F. Allenii* is a third rank species derived presumably from *F. Novae Angliae;* while *F. nitida*, *F. Duriaei*, *F. Lescurii*, and *F. flaccida* are accorded first, second, third, and fourth ranks respectively, being subordinated to *F. hypnoides* Hartm., a species which is widely distributed in Europe and which also occurs in the western part of this continent.

A revised key to the Connecticut species of *Fontinalis*, largely adapted from Cardot, is here given.

1. Stem leaves keeled .... *F. antipyretica*, var. *gigantea*
   Leaves not keeled 2
2. Leaves more or less distinctly dimorphic 3
   Leaves uniform or nearly so 4
3. Plants slender, branches widely spreading, branch leaves almost entire *F. Sullivantii*
   Plants robust, branches obliquely spreading, branch leaves distinctly denticulate above .... *F. Novae Angliae*, var. *heterophylla*
4. Leaves flaccid, plane or nearly so in upper half 5
   Leaves more or less firm, concave 8
5. Leaves entire or sinuolate at apex .... *F. nitida*
   Leaves denticulate at apex 6
6. Capsule ovoid or slightly elongated, trellis of inner peristome perfect; cells of leaf angles scarcely enlarged .... *F. Duriaei*
   Capsule subcylindrical, trellis of inner peristome imperfect; cells of leaf angles much enlarged 7
7. Leaves ovate lanceolate or oblong lanceolate, shortly acuminate *F. Lescurii*
   Leaves lanceolate, long acuminate .... *F. flaccida*
8. Leaves very concave, less than 4 mm. long 9
   Leaves slightly concave, 3.5–7 mm. long 10

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[1] Cardot, l. c. 119.

[2] Bryologist **13**: 48; also herb. Chamberlain.

[3] Herb. New York Botanical Garden.

[4] Renauld & Cardot, Musci Amer. Sept. 43. 1893.

[5] Bryologist **10**: 105. 1907.

[6] Herb. Cardot.

[7] Renauld & Cardot, l. c.

9. Leaves closely appressed-imbricate; apex usually rounded-acute, denticulate . . . . *F. Novae Angliae*, var. *Lorenziae*
   Leaves imbricate at base, spreading above; apex usually sharply acute, sinuolate . . . . *F. dalecarlica*
10. Plants rather slender, slightly glossy when dry, leaves erect-spreading. *F. Novae Angliae*
   Plants robust, very glossy when dry, leaves loosely appressed-imbricate *F. Allenii*

OTHER MOSSES NEW TO CONNECTICUT.

DICRANUM BONJEANI De Not. (*D. palustre* La Pyl.). Growing mixed with *D. Drummondii* in a spruce bog, altitude 120 m., New Fairfield (G. E. N., 1912). Determination verified by Mr. R. S. Williams. The Connecticut specimens seem to agree well with the typical form of the species. The leaves are bronze green in color, slightly secund, and decidedly undulate. They bear a marked resemblance to leaves of *D. undulatum*, but the serration both along the margin and at the back of the midrib is much less pronounced here than there. Fruit matures in late summer. *D. Bonjeani* has been accredited to Maine,[1] New Hampshire,[2] Vermont,[3] and Massachusetts.[4] It is found throughout arctic North America, Canada, and the northern United States, extending southward along the mountains to Georgia, Colorado, and California; Europe, Asia.

BARBULA CONVOLUTA Hedw., var. COMMUTATA (Jur.) Husn. Sericite schist bluffs bordering the Connecticut River, altitude 30 m., Portland (G. E. N., 1909). Determined by Mr. Williams. When in fruit *B. convoluta* is readily recognized by its long, convolute, sheathing perichaetial leaves Sterile plants might be mistaken for *B. unguiculata*. It differs, however, in the character of the leaf margin which in that species is revolute nearly to the apex while here it is plane except near the base; also by the fact that in the present species the midrib, instead of being excurrent, vanishes in or below the apex. The variety is somewhat larger than the typical form of the species and has longer, firmer, slightly recurved leaves. Fruit matures in spring. *B. convoluta* is reported from Vermont [5] and Massachusetts [6]; it is widely scattered through temperate North America; Europe, Asia, Africa.

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[1] Rand. & Redfield, l. c. 202.
[2] Herb. Yale University.
[3] Bryologist 7: 6. 1904.
[4] RHODORA 2: 96. 1904.
[5] Grout, Mosses of Vermont 14. 1898.
[6] Tuckerman & Frost, Plants within thirty miles of Amherst 47. 1875.

CAMPTOTHECIUM NITENS (Schreb). Schimp., var. **falcifolium** Ren. in litt. In a spruce bog, altitude 420 m., Norfolk (G. E. N., 1912). This variety differs from the typical form of the species in its strongly falcate-secund leaves; in habit it bears a striking resemblance to *Drepanocladus revolvens*. The credit for identifying the Connecticut plants with Renauld's undescribed variety should be given to Mr. Williams. Type collected by A. C. Waghorne at North Bay, Newfoundland (1893), and preserved in herbarium of New York Botanical Garden.

CALLIERGON STRAMINEUM (Dicks.) Kindb. In a spruce bog, altitude 420 m., Norfolk (G. E. N., 1912). Determinations verified by Mr. Williams. In the locality mentioned above two well marked forms of this moss are present. One of these occurs in the more open parts of the bog, growing especially at the bottom of deep ruts in an old wagon trail where the peat is more or less firmly packed down. When growing in such situations the plants are very slender and soft, with pale green, imbricated leaves, and there is no likelihood of their being mistaken for any other local bog species; they never develop very luxuriantly here, being more or less intermixed with *Camptothecium nitens, Scapania irrigua* and species of *Sphagnum*.

The second form grows partially submerged in shallow pools in somewhat shaded places and forms pure mats of considerable extent. This form is quite robust, with golden green leaves which may spread more or less widely and frequently reach a length of more than 2 mm. In the field this form might readily be confused with *C. cordifolium;* in that species, however, the midrib of the leaves is nearly percurrent while in *C. stramineum* the midrib extends little more than two thirds the length of the leaf. Fruit rare, maturing in summer. *C. stramineum* has been recorded from Maine,[1] New Hampshire,[2] Vermont,[3] Massachusetts[4], and Rhode Island [5]; it is widely distributed through Arctic America and Canada, and has been collected as far south as Virginia, Ohio, and Wyoming; Europe, Asia.

DREPANOCLADUS ADUNCUS (L.) Warnst. (*Hypnum uncinatum* Hedw.). Moist, shaded, sericite schist ledges, altitude 60 m. Middletown (G. E. N., 1912). In view of the fact that through a nomenclatorial mix-up this moss has previously been erroneously accredited to Connecticut it is a source of no little satisfaction at last to be able to reinstate it in the list. The characters which separate the species from other *Drepanocladi* are brought out in the writer's original key to the genus,[1] while the reasons for replacing the familiar binomial *H. uncinatum* by *D. aduncus* are sufficiently stated elsewhere.[2] Fruit usually borne in abundance, summer. *D. aduncus* has previously been recorded from Maine,[3] New Hampshire,[4] Vermont,[5] Massachusetts,[6] and Rhode Island.[7] It ranges throughout northern North America, reaching south as far as the mountains of West Virginia and California; a cosmopolitan.

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[1] Rand & Redfield, l. c. 219.

[2] Lesquereux & James, l. c. 405.

[3] Grout, Mosses of Vermont. 30. 1898.

[4] Tuckerman & Frost, l. c. 51.

[5] Bennett, l. c. 65.

The following additional localities for rare or infrequently collected mosses should also be noted [8] : *Sphagnum compactum,* North Haven; *Sphagnum obesum,* New Haven; *Dicranum spurium,* East Haven, Branford, and Killingworth; *Dicranum sabuletorum,* New Fairfield; *Dicranum Drummondii,* New Fairfield and Bethany; *Dicranum montanum,* Salisbury and Voluntown; *Dicranum viride,* Salisbury, Colebrook, and Voluntown; *Fissidens osmundoides,* Windsor (Miss Lorenz); *Octodiceras Julianum,* Salisbury and Branford; *Didymodon rubellus,* Windsor (Miss Lorenz); *Racomitrium sudeticum,* Killingworth; *Ephemerum cohaerens,* Branford; *Nanomitrium Austini,* New Haven; *Aphanorrhegma serratum,* Hartford (Miss Lorenz), Salisbury, and Bethany; *Bryum capillare,* Colebrook; *Myurella gracilis,* Middletown; *Pterigynandrum filiforme,* Salisbury and Colebrook; *Haplohymenium triste,* Colebrook; *Elodium Blandowii, Brachythecium populeum, Brachythecium velutinum, Sematophyllum tenuirostre,* and *Isopterygium elegans,* Colebrook; *Isopterygium turfaceum,* Norfolk and Colebrook; *Isopterygium Muellerianum,* Middletown; *Plagiothecium latebricola,* New Fairfield; *Amblystegiella confervoides,* Brookfield and Kent; *Amblystegium vacillans,* West Hartford (Miss Lorenz); *Chrysohypnum polygamum,* Salisbury; *Rhytidiadelphus squarrosus,* Colebrook; *Rhytidium rugosum,* Canaan; *Stereodon fertilis,* Voluntown; *Polytrichum strictum,* Colebrook.

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[1] Bryophytes of Connecticut. 167.
[2] RHODORA **10**: 153–154. 1910.
[3] Rand & Redfield, l. c. 216.
[4] Herb. Yale University.
[5] Grout, Mosses of Vermont 30.
[6] Tuckerman & Frost, l. c. 51.
[7] Bennett, l. c. 65.
[8] Unless otherwise indicated the specimens were collected by the writer.

NUTTALL'S WHITE SASSAFRAS.

M. L. Fernald.

The common *Sassafras* of eastern North America, *S. variifolium* (Salisb.) Kuntze, based upon *Laurus Sassafras* L., has the young leaves densely pubescent, the mature ones considerably so beneath (in extreme specimens almost velvety to the touch) and the new twigs closely pubescent or at least puberulent. This is the common tree from southern Maine to Texas in the coastal region, and it is found inland more or less throughout the Atlantic States, in the Mississippi Basin and about the Great Lakes. In some parts of its range, however, notably from the upland woods of western New England to the Carolina mountains, much of the *Sassafras* has the leaves nearly or quite glabrous from the first and the bark of the new shoots glabrous and often glaucous.

This glabrous or glabrate *Sassafras* was well known to Thomas Nuttall who, in 1818, after setting off the deciduous-leaved laurels of the United States as a subgenus *Euosmus*, described the smooth *Sassafras* as *Laurus* (*Euosmus*) *albida* or White Sassafras, which he distinguished from the commoner tree with pubescent twigs and foliage, his *Laurus* (*Euosmus*) *Sassafras* or Red Sassafras. Nuttall's account of the two, under *Laurus*, was as follows:

> "The deciduous leaved species of the United States appear to constitute a subgenus, which I propose as follows:
>
> *Euosmus.† Flowers polygamous or dioicous.— *Calix* 6-parted. *Nectarium* none. *Stamina* 9, fertile; 6 exterior, naked, the 3 interior augmented by 6 infertile short stamina, attached by pairs; anthers of the sterile stamina glanduloid. *Berry* 1-seeded.
>
> Trees or shrubs with alternate deciduous leaves, entire or lobed; flowers appearing before the leaves in small conglomerate umbells, or conglomerate bracteate racemes in *E. Sassafras* and *E.* **albida* . .
>
> . . . .
>
> §I. *Flowers umbellate, leaves entire.*
>
> Species. 3. *E. æstivalis* . . . . . . 4. *Benzoin,* . . . .
> 5. *Diospyrus* . . . . . . 6. *geniculata* . . . .
>
> §II. *Buds producing both leaves and flowers; racemes conglomerate, corymbose; leaves lobed.*
>
> 7. *Sassafras.* Dioicous; arborescent; buds, younger branches and the under side of the leaves pubescent; leaves entire, or 2 or 3

"† From ευοσμος, odorous."

lobed, under side prominently veined. (Red Sassafras.) — Anthers unequally 4-celled. The female flower produces the 6 infertile stamina only.

8. **albida.* Dioicous; arborescent; buds and younger branches smooth and glaucous; leaves entire, or 2 or 3 lobed, every where very smooth and thin, under side obsoletely veined, petiole longer. (White Sassafras.) HAB. In North and South Carolina abundant, from the Catawba mountains to the east bank of the Santee; growing with the common species, which is in North Carolina less abundant. I have not seen it in flower, therefore the comparison is incomplete, but all the inhabitants distinguish them perfectly by the names of white and red Sassafras, this species is also sometimes denominated Smooth Sassafras; the root is much more strongly camphorated than the ordinary sort and nearly white; it is also better calculated to answer as a substitute for *Ochra* (*Hibiscus esculentus*) than *E. Sassafras*, its buds and young branches being much more mucilaginous." [1]

Later, however, Nuttall concluded that the White Sassafras was a variety, rather than a species, saying in his North American Sylva:

"SASSAFRAS (*Laurus Sassafras.* Linn). The inhabitants of North and South Carolina distinguish two kinds of Sassafras, the Red and the White. The Red or true *L. Sassafras* I referred (in the Genera of North American plants, vol. 1. p. 259, 260.) to a sub-genus *Euosmus*, embracing also the following variety, which I then considered as a species, by the name of *L.* (*Euosmus*) *albida* . . . ." [2]

This mature judgment of Nuttall's appears sound for, although the two extremes are very pronounced, several specimens show transitions in the abundance and distribution of the pubescence; and the two varieties seem to be quite parallel with numerous other cases, such as the Red Ash, *Fraxinus pennsylvanica* Marsh. and Green Ash, *F. pennsylvanica*, var. *lanceolata* (Borkh.) Sargent or *Ilex monticola* Gray and its var. *mollis* (Gray) Britton. But, although the pubescent and the glabrous extremes of the *Fraxinus* and the *Ilex* have been long kept apart, sometimes as species, sometimes as varieties, the parallel case in *Sassafras* seems to have attracted little attention since the days of Nuttall and his immediate followers; for, though Sprengel went so far as to place the White Sassafras in a different genus from the Red (*Tetranthera albida* Spreng.[3] based on "*Evosmus albida* Nutt.") and Nees [4] maintained the two species, *Sassafras officinale* (*Laurus*

---

[1] Nutt. Gen. i. 258–260 (1818).

[2] Nutt. Sylva, i. 88 (1842).

[3] Spreng. Syst. ii. 267 (1825).

[4] Nees, Syst. Laur. 488–490 (1836).

Sassafras L.) and *S. albidum* (based upon "*Evosmus albida* Nutt." and Rafinesque[1] said that there are two species of *Sassafras*, "*S. rubra and albida* once blended in Laurus sassafras," recent treatments fail to take note of the differences.

Whether or not the two varieties have really different ranges it is not now possible to tell, but, judging from the material at hand, it would seem, as already indicated, that the pubescent extreme is more widely distributed over the country but in New England is the only form found in the sandy coastal region of Cape Cod, Nantucket and Rhode Island; while the smooth extreme is chiefly a tree of the more upland regions and extends from western New England to the Carolina mountains.

The glabrous or glabrate variety should be called:—

SASSAFRAS VARIIFOLIUM (Salisb.) Ktze., var. **albidum** (Nutt.), n. comb. *Laurus* (*Euosmus*) *albida* Nutt. Gen. i. 259 (1818). *Tetranthera albida* Spreng. Syst. ii. 267 (1825). *Evosmus albida* "Nutt" acc. to Spreng. l. c. as synonym (1825); Nees, Syst. Laur. 490 as synonym (1836); Steudel, Nom. ed. 2, 622 (1840). *S. albidum* Nees, l. c. (1836); Raf. Sylva Tell. 134 (1838). *Euosmus albida* "Nutt" acc. to Jackson, Ind. Kew. i. fasc 2, 914 (1893).

Whether the stronger flavor and white roots which Nuttall definitely ascribed to var. *albidum* are constant characters concomitant with the glabrous and glaucous twigs and glabrous foliage cannot now be determined, but a doubt is cast upon this point by the acute Kentuckian, John Uri Lloyd, who in his most interesting discussion of the history and uses of Sassafras says:

"The author's boyhood was spent in the country, in Kentucky, where sassafras abounds. . . . .

Kentuckians claim that there are two varieties of sassafras, the red sassafras and the white, distinguished only by the bark. The white sassafras is not so aromatic and is bitter to the taste, and they use only the red bark."[2]

A somewhat complex and academic nomenclatorial question arises from Nuttall's careless use of the initial "*E*," in referring to some species of *Laurus* which he placed in the subgenus *Euosmus*. In the original publication, in the Genera, all the species were numbered consecutively under *Laurus* but some of those which Nuttall placed under his new subgenus *Euosmus* were referred to as *E. Sassafras*, *E. albida*, etc. The later treatment by Nuttall, in his Sylva, should be conclusive that, to his mind *Euosmus*, as he clearly stated when he originally published it and as the sequence of numbered species showed, was only a subgenus of *Laurus* and should not be treated as of generic value, although in using the initial "*E*" Nuttall departed from the general usage which refrains from giving subgenera the apparent rank of genera. But subsequent authors, Reichenbach (1828) and Bartling (1830) took up the name without discussion and listed it, Reichenbach as "*Evosmus* Nutt.,"[1] Bartling as "*Euosmus* Nutt."[2] as a true generic name.

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[1] Raf. Sylva Tell. 134 (1838).

[2] J. U. Lloyd, Bull. Lloyd. Libr. no. xviii. 77, 78 (1911).

Whether the mere listing by Reichenbach of a name "*Evosmus* Nutt." in a table of generic names is sufficient to constitute *Evosmus* as a valid name for a genus is certainly a very doubtful question.

To the writer's mind there is no doubt that we should retain the clear and squarely published generic name *Sassafras* Nees & Ebermaier[3] as is now universally done and as is required by Article 5 of the International Rules which says: "in the absence of rule, or where the consequences of rules are doubtful, established custom becomes law"; but by those who do not allow the intent of the author to interfere with the taking up of an ill-begotten or thoughtlessly proposed name of real or fictitious priority, as for instance in the case of *Washingtonia* versus *Osmorhiza*, the name *Evosmus* should be carefully considered. In the case of *Washingtonia* versus *Osmorhiza*, Rafinesque, blissfully ignorant of the priority-rules to be promulgated after his death and thinking on paper, so to speak, said of Michaux's *Myrrhis:* "several names have been proposed for it, *Washingtonia, Osmorhiza, Gonatherus;* but these are not yet published; the second is perhaps the best."[4] Accordingly, all students of our flora, recognizing the validity of Rafinesque's proposition, called the Sweet Cicleys *Osmorhiza* until 1900, when Coulter & Rose, following the letter of the priority-rule to an illogical end, attempted to overthrow the name *Osmorhiza*, which they themselves admitted that Rafinesque clearly intended to use and later did use, and took up the name *Washingtonia* which Rafinesque had casually mentioned but promptly discarded. In so doing Coulter & Rose stated that, "It is under protest that we displace a name of such long use for what seems to be so trivial a reason, but the name *Washingtonia* will continue to be put forward in accordance with a technical interpretation of the law of priority".[1]

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[1] Reichenb. Consp. 87 (1828).

[2] Bartl. Ord. Nat. Pl. 112 (1830).

[3] Nees & Eberm. Handb. Bot. ii. 418 (1831).

[4] Raf. Am. Mo. Mag. ii. 176 (1818).

Of course, by those who believe in following the International Rules of Botanical Nomenclature, the name *Osmorhiza* is retained not only because it is clearly what Rafinesque meant to use but because of the sound requirement of Article 46 that, "If the names are of the same date, the author chooses, and his choice cannot be modified by subsequent authors."[2] But, as already said, to those who maintain that *Washingtonia* legitimately displaces *Osmorhiza* the equally ill-begotten name *Euosmus* (or *Evosmus*) should appeal. As used by Nuttall (1818) and of course by implication by Reichenbach (1828) and Bartling (1830) it covered species now generally referred to *Benzoin* Fabricius (1763), *Litsea* Lam. (1789) or *Malapoenna* Adans. (1763) and *Sassafras* Nees & Ebermaier (1831). With the species of *Benzoin* and *Litsea* (or *Malapoenna*) removed to those earlier-defined genera, the name *Euosmus* (or *Evosmus*) covered only members of the subsequently published genus *Sassafras.*

Gray Herbarium.

Extended Range of Viola pedata L.— It may be interesting to note that this plant, which is given in the "Manual" as extending from southern New England to Maryland, occurs much farther westward. In DeWitt Co., Illinois, I have found it in two localities, both in close proximity to each other, along Salt Creek in the southwestern part of the county. One locality was a hillside with a southern exposure, rather densely covered with a crab-apple thicket. The other was an open hilltop about a quarter of a mile farther westward. This one contained many more specimens than the first. All the plants on the thicketed hillside belonged to the species, so far as a careful search revealed, but on the open hilltop there were a very few specimens of the variety *lineariloba.*

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[1] Coult. & Rose, Contrib. U. S. Nat. Herb. vii. 61 (1900).

[2] It is unfortunate that in Coulter & Nelson's Manual in which "the nomenclature, so far as practicable, is that adopted by the Vienna Congress," it was not found practicable to follow Article 46 and that, in spite of Professor Coulter's earlier-expressed protest against the name, *Washingtonia* was used instead of *Osmorhiza.*

In the dune region of Lake Co., Indiana, I have also found specimens of *V. pedata,* but in my experience it is very rare, while the variety is very abundant, and is doubtless the most common violet in that region.— Edwin D. Hull, Chicago, Illinois.

A second local Record for Rynchospora macrostachya Torr.— As the only recorded locality for this fine species within the Local Flora area is Great Pond, South Weymouth, Massachusetts, its discovery at another pond about four miles further north is of interest. I found about half a dozen dried up plants, still retaining achenes, about the north shore of Great Pond, in Braintree, on 6 Nov., 1912, and collected several.

Perhaps the most interesting feature in the New England distribution of this plant is its occurrence in the vicinity of Amherst, Massachusetts, at Leverett Pond (one of the type localities) and Belchertown, evidently as a migrant up the Connecticut River, although no intermediate stations are known as yet; a specimen collected at Leverett Pond by Edward Hitchcock is in the Gray Herbarium. It is rather common on Cape Cod, occurs in Rhode Island and at a few coastwise stations in Connecticut, as well as at Monroe and Woodbury near the Housatonic, and extends along the coast to Florida and Texas, and up the Mississippi Basin to Indiana and Kansas in the broad V characteristic of so many coastal-plain species.— Sidney F. Blake, Stoughton, Massachusetts.

Dr. C. A. Darling's Handbook of the Wild and Cultivated Plants[1] presents in compact form four general, dichotomous keys, as follows: (1) to the wild plants and cultivated trees and shrubs which flower in March, April, and May; (2) to the wild plants and cultivated trees and shrubs which flower from June to November; (3) to the wild and cultivated trees and shrubs in autumn; and (4) to the cultivated herbs and potted shrubs. These keys are followed by a brief synopsis of all the species treated, arranged in their several families and also keyed out in a dichotomous manner. The author has availed himself of the most obvious distinctions; thus, in beginning his key to the usually formidable family *Compositae,* there is no struggling with achenes or pappus-bristles, style-branches or anther-tips, one is merely asked to observe whether the plant in question is cultivated in a hanging basket or not. Surely greater lucidity could scarcely be attained. The book is one which will give pleasure to many a vacation tourist and will lead to many a speedy and often correct identification, also, however, inevitably to many an error. In his preface the author says, "The object of this Handbook is to furnish a convenient and easy means of determining the wild and cultivated flowering plants found in the East. The rarer plants grown in greenhouses and in Botanical Gardens are not included." In the absence of any statement to the contrary the reader would naturally infer that all the wild plants of 'the East' — wherever that may be — have been included, which is far from being the case. If, for instance, a tourist attempts to use the book in Maine (which may fairly be interpreted as falling within the limits of the East), and tries to identify by it any one of a half dozen species of Eyebright, he will inevitably come to grief, for the genus is not mentioned. Various fairly prominent genera, such as *Arisaema, Eriophorum, Lemna, Corallorhiza, Claytonia, Castalia,* etc., are given but a single species, notwithstanding the fact that two or more of each are to be found in the eastern states. Where there has been, as in this work, a somewhat arbitrary selection as to which of many native plants to include and which to omit, it would seem that the author owed his public some intimation as to the method of choice, and at all events should warn the user against undue faith in the completeness of the work.— B. L. R.

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[1] By Chester Arthur Darling, A. M., Ph. D., Instructor in Botany, Columbia University. 12mo., 264 pp. New York, 1912. Published by the author.

Vol. 14, no. 168, including pages 229 to 254, and title page of the volume, was issued 23 December, 1912.

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